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TECH CENTER 1600/2000

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SEP 21

TECH CENTER 1600/2000

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Sophie Roy
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<120> AUTOANTIGENIC FRAGMENTS, METHODS AND
ASSAYS

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 35 40 45
 Gly Gln Gln Ile Leu Lys Gln Pro Val Ser Glu Arg Leu Asp Phe Val
 50 55 60
 Cys Ser Phe Leu Gln Lys Asn Arg Lys His Pro Ser Ser Pro Glu Cys
 65 70 75 80
 Leu Val Ser Ala Gln Lys Val Leu Glu Gly Ser Glu Leu Glu Leu Ala
 85 90 95
 Lys Met Thr Met Leu Leu Leu Tyr His Ser Thr Met Ser Ser Lys Ser
 100 105 110
 Pro Arg Asp Trp Glu Gln Phe Glu Tyr Lys Ile Gln Ala Glu Leu Ala
 115 120 125
 Val Ile Leu Lys Phe Val Leu Asp His Glu Asp Gly Leu Asn Leu Asn
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 Glu Asp Leu Glu Asn Phe Leu Gln Lys Ala Pro Val Pro Ser Thr Cys
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 Ser Ser Thr Phe Pro Glu Glu Leu Ser Pro Pro Ser His Gln Ala Lys
 165 170 175
 Arg Glu Ile Arg Phe Leu Glu Leu Gln Lys Val Ala Ser Ser Ser
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 Gly Asn Asn Phe Leu Ser Gly Ser Pro Ala Ser Pro Met Gly Asp Ile
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 Leu Gln Thr Pro Gln Phe Gln Met Arg Arg Leu Lys Lys Gln Leu Ala
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 Asp Glu Arg Ser Asn Arg Asp Glu Leu Glu Leu Glu Leu Ala Glu Asn
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 Arg Lys Leu Leu Thr Glu Lys Asp Ala Gln Ile Ala Met Met Gln Gln
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 Thr Met Arg Leu His Glu Thr Leu Lys Gln Cys Gln Asp Leu Lys Thr
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 Glu Lys Ser Gln Met Asp Arg Lys Ile Asn Gln Leu Ser Glu Glu Asn
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 Gly Asp Leu Ser Phe Lys Leu Arg Glu Phe Ala Ser His Leu Gln Gln
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 Leu Gln Asp Ala Leu Asn Glu Leu Thr Glu Glu His Ser Lys Ala Thr
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 Gln Glu Trp Leu Glu Lys Gln Ala Gln Leu Glu Lys Glu Leu Ser Ala
 355 360 365
 Ala Leu Gln Asp Lys Lys Cys Leu Glu Glu Lys Asn Glu Ile Leu Gln
 370 375 380
 Gly Lys Leu Ser Gln Leu Glu Glu His Leu Ser Gln Leu Gln Asp Asn
 385 390 395 400
 Pro Pro Gln Glu Lys Gly Glu Val Leu Gly Asp Val Leu Gln Leu Glu
 405 410 415
 Thr Leu Lys Gln Glu Ala Ala Thr Leu Ala Ala Asn Asn Thr Gln Leu
 420 425 430
 Gln Ala Arg Val Glu Met Leu Glu Thr Glu Arg Gly Gln Gln Glu Ala
 435 440 445
 Lys Leu Leu Ala Glu Arg Gly His Phe Glu Glu Glu Lys Gln Gln Leu
 450 455 460
 Ser Ser Leu Ile Thr Asp Leu Gln Ser Ser Ile Ser Asn Leu Ser Gln
 465 470 475 480
 Ala Lys Glu Glu Leu Glu Gln Ala Ser Gln Ala His Gly Ala Arg Leu
 485 490 495

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Ala	Ser	Gln	Gly	Leu	Arg	His	Gln	Val	Glu	Gln	Leu	Ser	Ser	Ser	Leu
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Lys	Gln	Lys	Glu	Gln	Gln	Leu	Lys	Glu	Val	Ala	Glu	Lys	Gln	Glu	Ala
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Thr	Arg	Gln	Asp	His	Ala	Gln	Gln	Leu	Ala	Thr	Ala	Ala	Glu	Glu	Arg
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Glu	Ala	Ser	Leu	Arg	Glu	Arg	Asp	Ala	Ala	Leu	Lys	Gln	Leu	Glu	Ala
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Leu	Glu	Lys	Glu	Lys	Ala	Ala	Lys	Leu	Glu	Ile	Leu	Gln	Gln	Gln	Leu
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Ala	Gln	Arg	Glu	Lys	Ala	Glu	Leu	Ser	Arg	Lys	Val	Glu	Glu	Leu	Gln
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Val	Ala	Glu	Leu	Glu	Leu	Gln	Leu	Arg	Ser	Glu	Gln	Gln	Lys	Ala	Thr
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Glu	Lys	Glu	Arg	Val	Ala	Gln	Glu	Lys	Asp	Gln	Leu	Gln	Glu	Gln	Leu
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Glu	Lys	Arg	Arg	Ala	Ala	Asp	Ala	Leu	Glu	Glu	Gln	Gln	Arg	Cys	Ile
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Ser	Glu	Leu	Lys	Ala	Glu	Thr	Arg	Ser	Leu	Val	Glu	Gln	His	Lys	Arg
		740						745					750		
Glu	Arg	Lys	Glu	Leu	Glu	Glu	Glu	Arg	Ala	Gly	Arg	Lys	Gly	Leu	Glu
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Ala	Arg	Leu	Leu	Gln	Leu	Gly	Glu	Ala	His	Gln	Ala	Glu	Thr	Glu	Val
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Leu	Arg	Arg	Glu	Leu	Ala	Glu	Ala	Met	Ala	Ala	Gln	His	Thr	Ala	Glu
785					790					795					800
Ser	Glu	Cys	Glu	Gln	Leu	Val	Lys	Glu	Val	Ala	Ala	Trp	Arg	Asp	Gly
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Tyr	Glu	Asp	Ser	Gln	Gln	Glu	Glu	Ala	Gln	Tyr	Gly	Ala	Met	Phe	Gln
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Glu	Gln	Leu	Met	Thr	Leu	Lys	Glu	Glu	Cys	Glu	Lys	Ala	Arg	Gln	Glu
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Cys	Ser	Thr	Gln	Ala	Ala	Leu	Gln	Ala	Met	Glu	Arg	Glu	Ala	Glu	Gln
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 Glu Arg Ala Ser Arg Ala Glu Arg Asp Ser Ala Leu Glu Thr Leu Gln
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 Asp His Ser Lys Ala Glu Asp Glu Trp Lys Ala Gln Val Ala Arg Gly
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 1890 1895 1900
 Arg Ile Ala Glu Leu Gln Gln Arg Asn Arg Val Cys Pro Pro His Leu
 1905 1910 1915 1920
 Lys Thr Cys Tyr Pro Leu Glu Ser Arg Pro Ser Leu Ser Leu Gly Thr
 1925 1930 1935
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 1940 1945 1950
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 1955 1960 1965
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 1970 1975 1980

Gly Thr Pro Glu Ser Lys Lys Ala Thr Ser Cys Phe Pro Arg Pro Met
 1985 1990 1995 2000
 Thr Pro Arg Asp Arg His Glu Gly Arg Lys Gln Ser Thr Thr Glu Ala
 2005 2010 2015
 Gln Lys Lys Ala Ala Pro Ala Ser Thr Lys Gln Ala Asp Arg Arg Gln
 2020 2025 2030
 Ser Met Ala Phe Ser Ile Leu Asn Thr Pro Lys Lys Leu Gly Asn Ser
 2035 2040 2045
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 Asn Thr Arg Ser Gly Thr Arg Arg Ser Pro Arg Ile Ala Thr Thr Thr
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 Cys Ser Phe Leu Gln Lys Asn Arg Lys His Pro Ser Ser Pro Glu Cys
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 Leu Val Ser Ala Gln Lys Val Leu Glu Gly Ser Glu Leu Glu Leu Ala
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 Lys Met Thr Met Leu Leu Leu Tyr His Ser Thr Met Ser Ser Lys Ser
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 Pro Arg Asp Trp Glu Gln Phe Glu Tyr Lys Ile Gln Ala Glu Leu Ala
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 225 230 235 240
 Arg Lys Leu Leu Thr Glu Lys Asp Ala Gln Ile Ala Met Met Gln Gln
 245 250 255
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 260 265 270
 Leu Glu Pro Lys Glu Leu Glu Glu Leu Arg Asp Lys Asn Glu Ser Leu
 275 280 285
 Thr Met Arg Leu His Glu Thr Leu Lys Gln Cys Gln Asp Leu Lys Thr
 290 295 300
 Glu Lys Ser Gln Met Asp Arg Lys Ile Asn Gln Leu Ser Glu Glu Asn

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Gln	Glu	Trp	Leu	Glu	Lys	Gln	Ala	Gln	Leu	Glu	Lys	Glu	Leu	Ser
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Ala	Leu	Gln	Asp	Lys	Lys	Cys	Leu	Glu	Glu	Lys	Asn	Glu	Ile	Leu
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Gly	Lys	Leu	Ser	Gln	Leu	Glu	Glu	His	Leu	Ser	Gln	Leu	Gln	Asp
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Thr	Leu	Lys	Gln	Glu	Ala	Ala	Thr	Leu	Ala	Ala	Asn	Asn	Thr	Gln
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Gln	Ala	Arg	Val	Glu	Met	Leu	Glu	Thr	Glu	Arg	Gly	Gln	Gln	Glu
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Lys	Leu	Leu	Ala	Glu	Arg	Gly	His	Phe	Glu	Glu	Glu	Lys	Gln	Gln
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Gln	Val	Ala	Asn	Glu	Ala	Arg	Asp	Ser	Ala	Gln	Thr	Ser	Val	Thr
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Ala	Gln	Arg	Glu	Lys	Ala	Glu	Leu	Ser	Arg	Lys	Val	Glu	Glu	Leu
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Ala	Cys	Val	Glu	Thr	Ala	Arg	Gln	Glu	Gln	His	Glu	Ala	Gln	Ala
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Val	Ala	Glu	Leu	Glu	Leu	Gln	Leu	Arg	Ser	Glu	Gln	Gln	Lys	Ala
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Glu	Lys	Glu	Arg	Val	Ala	Gln	Glu	Lys	Asp	Gln	Leu	Gln	Glu	Gln
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Gln	Ala	Leu	Lys	Glu	Ser	Leu	Lys	Val	Thr	Lys	Gly	Ser	Leu	Glu
705					710					715				Glu
Glu	Lys	Arg	Arg	Ala	Ala	Asp	Ala	Leu	Glu	Glu	Gln	Gln	Arg	Cys
				725					730					Ile
Ser	Glu	Leu	Lys	Ala	Glu	Thr	Arg	Ser	Leu	Val	Glu	Gln	His	Lys
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Glu	Arg	Lys	Glu	Leu	Glu	Glu	Glu	Arg	Ala	Gly	Arg	Lys	Gly	Leu
		755					760					765		Glu
Ala	Arg	Leu	Gln	Gln	Leu	Gly	Glu	Ala	His	Gln	Ala	Glu	Thr	Glu
	770					775					780			Val
Leu	Arg	Arg	Glu	Leu	Ala	Glu	Ala	Met	Ala	Ala	Gln	His	Thr	Ala
785					790					795				Glu
Ser	Glu	Cys	Glu	Gln	Leu	Val	Lys	Glu	Val	Ala	Ala	Trp	Arg	Glu
														Arg

1300					1305					1310					
Gln	Glu	Leu	Thr	Ser	Gln	Ala	Glu	Arg	Ala	Glu	Glu	Leu	Gly	Gln	Glu
1315					1320					1325					
Leu	Lys	Ala	Trp	Gln	Glu	Lys	Phe	Phe	Gln	Lys	Glu	Gln	Ala	Leu	Ser
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Thr	Leu	Gln	Leu	Glu	His	Thr	Ser	Thr	Gln	Ala	Leu	Val	Ser	Glu	Leu
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Leu	Pro	Ala	Lys	His	Leu	Cys	Gln	Gln	Leu	Gln	Ala	Glu	Gln	Ala	Ala
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Ala	Glu	Lys	Arg	His	Arg	Glu	Glu	Leu	Glu	Gln	Ser	Lys	Gln	Ala	Ala
1380					1385					1390					
Gly	Gly	Leu	Arg	Ala	Glu	Leu	Leu	Arg	Ala	Gln	Arg	Glu	Leu	Gly	Glu
1395					1400					1405					
Leu	Ile	Pro	Leu	Arg	Gln	Lys	Val	Ala	Glu	Gln	Glu	Arg	Thr	Ala	Gln
1410					1415					1420					
Gln	Leu	Arg	Ala	Glu	Lys	Ala	Ser	Tyr	Ala	Glu	Gln	Leu	Ser	Met	Leu
1425					1430					1435					
Lys	Lys	Ala	His	Gly	Leu	Leu	Ala	Glu	Glu	Asn	Arg	Gly	Leu	Gly	Glu
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Arg	Ala	Asn	Leu	Gly	Arg	Gln	Phe	Leu	Glu	Val	Glu	Leu	Asp	Gln	Ala
1460					1465					1470					
Arg	Glu	Lys	Tyr	Val	Gln	Glu	Leu	Ala	Ala	Val	Arg	Ala	Asp	Ala	Glu
1475					1480					1485					
Thr	Arg	Leu	Ala	Glu	Val	Gln	Arg	Glu	Ala	Gln	Ser	Thr	Ala	Arg	Glu
1490					1495					1500					
Leu	Glu	Val	Met	Thr	Ala	Lys	Tyr	Glu	Gly	Ala	Lys	Val	Lys	Val	Leu
1505					1510					1515					
Glu	Glu	Arg	Gln	Arg	Phe	Gln	Glu	Glu	Arg	Gln	Lys	Leu	Thr	Ala	Gln
1525					1530					1535					
Val	Glu	Gln	Leu	Glu	Val	Phe	Gln	Arg	Glu	Gln	Thr	Lys	Gln	Val	Glu
1540					1545					1550					
Glu	Leu	Ser	Lys	Lys	Leu	Ala	Asp	Ser	Asp	Gln	Ala	Ser	Lys	Val	Gln
1555					1560					1565					
Gln	Gln	Lys	Leu	Lys	Ala	Val	Gln	Ala	Gln	Gly	Gly	Glu	Ser	Gln	Gln
1570					1575					1580					
Glu	Ala	Gln	Arg	Leu	Gln	Ala	Gln	Leu	Asn	Glu	Leu	Gln	Ala	Gln	Leu
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Ser	Gln	Lys	Glu	Gln	Ala	Ala	Glu	His	Tyr	Lys	Leu	Gln	Met	Glu	Lys
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1635					1640					1645					
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Arg	Ser	Leu	Glu	Ala	Gln	Val	Ala	His	Ala	Asp	Gln	Gln	Leu	Arg	Asp
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Gln	Ala	Lys	Pro	Gln	Leu	Asp	Leu	Ser	Ile	Asp	Ser	Leu	Asp	Leu	Ser
1715					1720					1725					
Cys	Glu	Glu	Gly	Thr	Pro	Leu	Ser	Ile	Thr	Ser	Lys	Leu	Pro	Arg	Thr
1730					1735					1740					
Gln	Pro	Asp	Gly	Thr	Ser	Val	Pro	Gly	Glu	Pro	Ala	Ser	Pro	Ile	Ser
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Gln	Arg	Leu	Pro	Pro	Lys	Val	Glu	Ser	Leu	Glu	Ser	Leu	Tyr	Phe	Thr
1765					1770					1775					
Pro	Ile	Pro	Ala	Arg	Ser	Gln	Ala	Pro	Leu	Glu	Ser	Ser	Leu	Asp	Ser
1780					1785					1790					
Leu	Gly	Asp	Val	Phe	Gln	Asp	Ser	Gly	Arg	Lys	Thr	Arg	Ser	Ala	Arg

1795 1800 1805
 Arg Arg Thr Thr Gln Ile Ile Asn Ile Thr Met Thr Lys Lys Leu Asp
 1810 1815 1820
 Val Glu Glu Pro Asp Ser Ala Asn Ser Ser Phe Tyr Ser Thr Arg Ser
 1825 1830 1835 1840
 Ala Pro Ala Ser Gln Ala Ser Leu Arg Ala Thr Ser Ser Thr Gln Ser
 1845 1850 1855
 Leu Ala Arg Leu Gly Ser Pro Asp Tyr Gly Asn Ser Ala Leu Leu Ser
 1860 1865 1870
 Leu Pro Gly Tyr Arg Pro Thr Thr Arg Ser Ser Ala Arg Arg Ser Gln
 1875 1880 1885
 Ala Gly Val Ser Ser Gly Ala Pro Pro Gly Arg Asn Ser Phe Tyr Met
 1890 1895 1900
 Gly Thr Cys Gln Asp Glu Pro Glu Gln Leu Asp Asp Trp Asn Arg Ile
 1905 1910 1915 1920
 Ala Glu Leu Gln Gln Arg Asn Arg Val Cys Pro Pro His Leu Lys Thr
 1925 1930 1935
 Cys Tyr Pro Leu Glu Ser Arg Pro Ser Leu Ser Leu Gly Thr Ile Thr
 1940 1945 1950
 Asp Glu Glu Met Lys Thr Gly Asp Pro Gln Glu Thr Leu Arg Arg Ala
 1955 1960 1965
 Ser Met Gln Pro Ile Gln Ile Ala Glu Gly Thr Gly Ile Thr Thr Arg
 1970 1975 1980
 Gln Gln Arg Lys Arg Val Ser Leu Glu Pro His Gln Gly Pro Gly Thr
 1985 1990 1995 2000
 Pro Glu Ser Lys Lys Ala Thr Ser Cys Phe Pro Arg Pro Met Thr Pro
 2005 2010 2015
 Arg Asp Arg His Glu Gly Arg Lys Gln Ser Thr Thr Glu Ala Gln Lys
 2020 2025 2030
 Lys Ala Ala Pro Ala Ser Thr Lys Gln Ala Asp Arg Arg Gln Ser Met
 2035 2040 2045
 Ala Phe Ser Ile Leu Asn Thr Pro Lys Lys Leu Gly Asn Ser Leu Leu
 2050 2055 2060
 Arg Arg Gly Ala Ser Lys Lys Ala Leu Ser Lys Ala Ser Pro Asn Thr
 2065 2070 2075 2080
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 2085 2090 2095
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 Ala Lys His
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 20 25 30
 Gln Leu Ile Arg Gly Leu Gly Gln Glu Cys Val Leu Ser Ser Ser Pro
 35 40 45
 Ala Val Leu Ala Leu Gln Thr Ser Leu Val Phe Ser Arg Asp Phe Gly
 50 55 60
 Leu Leu Val Phe Val Arg Lys Ser Leu Asn Ser Ile Glu Phe Arg Glu

65					70				75				80
Cys	Arg	Glu	Glu	Ile	Leu	Lys	Phe	Leu	Cys	Ile	Phe	Leu	Glu
				85					90				Lys
Gly	Gln	Lys	Ile	Ala	Pro	Tyr	Ser	Val	Glu	Ile	Lys	Asn	Thr
			100					105					Cys
Ser	Val	Tyr	Thr	Lys	Asp	Arg	Ala	Ala	Lys	Cys	Lys	Ile	Pro
		115					120					125	Ala
Asp	Leu	Leu	Ile	Lys	Leu	Leu	Gln	Thr	Phe	Arg	Ser	Ser	Arg
	130					135					140		Leu
Asp	Glu	Phe	Lys	Ile	Gly	Glu	Leu	Phe	Ser	Lys	Phe	Tyr	Gly
	145				150					155			Glu
Ala	Leu	Lys	Lys	Lys	Ile	Pro	Asp	Thr	Val	Leu	Glu	Lys	Val
				165					170				Tyr
Leu	Leu	Gly	Leu	Leu	Gly	Glu	Val	His	Pro	Ser	Glu	Met	Ile
			180					185					Asn
Ala	Glu	Asn	Leu	Phe	Arg	Ala	Phe	Leu	Gly	Glu	Leu	Lys	Thr
	195						200					205	Gln
Thr	Ser	Ala	Val	Arg	Glu	Pro	Lys	Leu	Pro	Val	Leu	Ala	Gly
	210					215					220		Cys
Lys	Gly	Leu	Ser	Ser	Leu	Leu	Cys	Asn	Phe	Thr	Lys	Ser	Met
	225				230					235			Glu
Asp	Pro	Gln	Thr	Ser	Arg	Glu	Ile	Phe	Asn	Phe	Val	Leu	Lys
				245					250				Ala
Arg	Pro	Gln	Ile	Asp	Leu	Lys	Arg	Tyr	Ala	Val	Pro	Ser	Ala
			260					265					Gly
Arg	Leu	Phe	Ala	Leu	His	Ala	Ser	Gln	Phe	Ser	Thr	Cys	Leu
	275						280					285	Leu
Asn	Tyr	Val	Ser	Leu	Phe	Glu	Val	Leu	Ile	Lys	Trp	Cys	Ala
	290				295						300		His
Asn	Val	Glu	Leu	Lys	Lys	Ala	Ala	Leu	Ser	Ala	Leu	Glu	Ser
	305				310				315				Phe
Lys	Gln	Val	Ser	Asn	Met	Val	Ala	Lys	Asn	Ala	Glu	Met	His
				325					330				Lys
Lys	Leu	Gln	Tyr	Glu	Met	Glu	Gln	Phe	Tyr	Gly	Ile	Ile	Arg
			340					345					Asn
Asp	Ser	Asn	Asn	Lys	Glu	Leu	Ser	Ile	Ala	Ile	Arg	Gly	Tyr
		355					360				365		Gly
Phe	Ala	Gly	Pro	Cys	Lys	Val	Ile	Asn	Ala	Lys	Asp	Val	Asp
	370					375					380		Phe
Tyr	Val	Glu	Leu	Ile	Gln	Arg	Cys	Lys	Gln	Met	Phe	Leu	Thr
	385				390					395			Gln
Asp	Thr	Gly	Asp	Tyr	Arg	Val	Tyr	Gln	Met	Pro	Ser	Phe	Leu
			405						410				Gln
Val	Ala	Ser	Val	Leu	Leu	Tyr	Leu	Asp	Thr	Val	Pro	Glu	Val
			420					425				430	Tyr
Pro	Val	Leu	Glu	His	Leu	Val	Val	Met	Gln	Ile	Asp	Ser	Phe
	435						440				445		Pro
Tyr	Ser	Pro	Lys	Met	Gln	Leu	Val	Cys	Cys	Arg	Ala	Ile	Val
	450				455						460		Lys
Phe	Leu	Ala	Leu	Ala	Ala	Lys	Gly	Pro	Val	Leu	Arg	Asn	Cys
	465				470				475				Ile
Thr	Val	Val	His	Gln	Gly	Leu	Ile	Arg	Ile	Cys	Ser	Lys	Pro
				485				490					Val
Leu	Pro	Lys	Gly	Pro	Glu	Ser	Glu	Ser	Glu	Asp	His	Arg	Ala
			500					505					Ser
Glu	Val	Arg	Thr	Gly	Lys	Trp	Lys	Val	Pro	Thr	Tyr	Lys	Asp
	515						520					525	Tyr
Asp	Leu	Phe	Arg	His	Leu	Leu	Ser	Ser	Asp	Gln	Met	Met	Asp
	530					535					540		Ser
Leu	Ala	Asp	Glu	Ala	Phe	Phe	Ser	Val	Asn	Ser	Ser	Ser	Glu
	545				550				555				Ser
Asn	His	Leu	Leu	Tyr	Asp	Glu	Phe	Val	Lys	Ser	Val	Leu	Lys
												Ile	Val

1060					1065					1070					
Phe	Lys	Arg	Leu	Gly	Ala	Ser	Leu	Ala	Phe	Asn	Asn	Ile	Tyr	Arg	Glu
1075					1080					1085					
Phe	Arg	Glu	Glu	Glu	Ser	Leu	Val	Glu	Gln	Phe	Val	Phe	Glu	Ala	Leu
1090					1095					1100					
Val	Ile	Tyr	Met	Glu	Ser	Leu	Ala	Leu	Ala	His	Ala	Asp	Glu	Lys	Ser
1105					1110					1115					
Leu	Gly	Thr	Ile	Gln	Cys	Cys	Asp	Ala	Ile	Asp	His	Leu	Cys	Arg	
1125					1130					1135					
Ile	Ile	Glu	Lys	Lys	His	Val	Ser	Leu	Asn	Lys	Ala	Lys	Lys	Arg	Arg
1140					1145					1150					
Leu	Pro	Arg	Gly	Phe	Pro	Pro	Ser	Ala	Ser	Leu	Cys	Leu	Leu	Asp	Leu
1155					1160					1165					
Val	Lys	Trp	Leu	Leu	Ala	His	Cys	Gly	Arg	Pro	Gln	Thr	Glu	Cys	Arg
1170					1175					1180					
His	Lys	Ser	Ile	Glu	Leu	Phe	Tyr	Lys	Phe	Val	Pro	Leu	Leu	Pro	Gly
1185					1190					1195					
Asn	Arg	Ser	Pro	Asn	Leu	Trp	Leu	Lys	Asp	Val	Leu	Lys	Glu	Glu	Gly
1205					1210					1215					
Val	Ser	Phe	Leu	Ile	Asn	Thr	Phe	Glu	Gly	Gly	Gly	Cys	Gly	Gln	Pro
1220					1225					1230					
Ser	Gly	Ile	Leu	Ala	Gln	Pro	Thr	Leu	Leu	Tyr	Leu	Arg	Gly	Pro	Phe
1235					1240					1245					
Ser	Leu	Gln	Ala	Thr	Leu	Cys	Trp	Leu	Asp	Leu	Leu	Leu	Ala	Ala	Leu
1250					1255					1260					
Glu	Cys	Tyr	Asn	Thr	Phe	Ile	Gly	Glu	Arg	Thr	Val	Gly	Ala	Leu	Gln
1265					1270					1275					
Val	Leu	Gly	Thr	Glu	Ala	Gln	Ser	Ser	Leu	Leu	Lys	Ala	Val	Ala	Phe
1285					1290					1295					
Phe	Leu	Glu	Ser	Ile	Ala	Met	His	Asp	Ile	Ile	Ala	Ala	Glu	Lys	Cys
1300					1305					1310					
Phe	Gly	Thr	Gly	Ala	Ala	Gly	Asn	Arg	Thr	Ser	Pro	Gln	Glu	Gly	Glu
1315					1320					1325					
Arg	Tyr	Asn	Tyr	Ser	Lys	Cys	Thr	Val	Val	Val	Arg	Ile	Met	Glu	Phe
1330					1335					1340					
Thr	Thr	Thr	Leu	Leu	Asn	Thr	Ser	Pro	Glu	Gly	Trp	Lys	Leu	Leu	Lys
1345					1350					1355					
Lys	Asp	Leu	Cys	Asn	Thr	His	Leu	Met	Arg	Val	Leu	Val	Gln	Thr	Leu
1365					1370					1375					
Cys	Glu	Pro	Ala	Ser	Ile	Gly	Phe	Asn	Ile	Gly	Asp	Val	Gln	Val	Met
1380					1385					1390					
Ala	His	Leu	Pro	Asp	Val	Cys	Val	Asn	Leu	Met	Lys	Ala	Leu	Lys	Met
1395					1400					1405					
Ser	Pro	Tyr	Lys	Asp	Ile	Leu	Glu	Thr	His	Leu	Arg	Glu	Lys	Ile	Thr
1410					1415					1420					
Ala	Gln	Ser	Ile	Glu	Glu	Leu	Cys	Ala	Val	Asn	Leu	Tyr	Gly	Pro	Asp
1425					1430					1435					
Ala	Gln	Val	Asp	Arg	Ser	Arg	Leu	Ala	Ala	Val	Val	Ser	Ala	Cys	Lys
1445					1450					1455					
Gln	Leu	His	Arg	Ala	Gly	Leu	Leu	His	Asn	Ile	Leu	Pro	Ser	Gln	Ser
1460					1465					1470					
Thr	Asp	Leu	His	His	Ser	Val	Gly	Thr	Glu	Leu	Leu	Ser	Leu	Val	Tyr
1475					1480					1485					
Lys	Gly	Ile	Ala	Pro	Gly	Asp	Glu	Arg	Gln	Cys	Leu	Pro	Ser	Leu	Asp
1490					1495					1500					
Leu	Ser	Cys	Lys	Gln	Leu	Ala	Ser	Gly	Leu	Leu	Glu	Leu	Ala	Phe	Ala
1505					1510					1515					
Phe	Gly	Gly	Leu	Cys	Glu	Arg	Leu	Val	Ser	Leu	Leu	Leu	Asn	Pro	Ala
1525					1530					1535					
Val	Leu	Ser	Thr	Ala	Ser	Leu	Gly	Ser	Ser	Gln	Gly	Ser	Val	Ile	His
1540					1545					1550					
Phe	Ser	His	Gly	Glu	Tyr	Phe	Tyr	Ser	Leu	Phe	Ser	Glu	Thr	Ile	Asn

1555	1560	1565
Thr Glu Leu Leu Lys Asn Leu Asp Leu Ala Val Leu Glu Leu Met Gln		
1570	1575	1580
Ser Ser Val Asp Asn Thr Lys Met Val Ser Ala Val Leu Asn Gly Met		
1585	1590	1595
Leu Asp Gln Ser Phe Arg Glu Arg Ala Asn Gln Lys His Gln Gly Leu		1600
1605	1610	1615
Lys Leu Ala Thr Thr Ile Leu Gln His Trp Lys Lys Cys Asp Ser Trp		
1620	1625	1630
Trp Ala Lys Asp Ser Pro Leu Glu Thr Lys Met Ala Val Leu Ala Leu		
1635	1640	1645
Leu Ala Lys Ile Leu Gln Ile Asp Ser Ser Val Ser Phe Asn Thr Ser		
1650	1655	1660
His Gly Ser Phe Pro Glu Val Phe Thr Thr Tyr Ile Ser Leu Leu Ala		
1665	1670	1675
Asp Thr Lys Leu Asp Leu His Leu Lys Gly Gln Ala Val Thr Leu Leu		1680
1685	1690	1695
Pro Phe Phe Thr Ser Leu Thr Gly Gly Ser Leu Glu Glu Leu Arg Arg		
1700	1705	1710
Val Leu Glu Gln Leu Ile Val Ala His Phe Pro Met Gln Ser Arg Glu		
1715	1720	1725
Phe Pro Pro Gly Thr Pro Arg Phe Asn Asn Tyr Val Asp Cys Met Lys		
1730	1735	1740
Lys Phe Leu Asp Ala Leu Glu Leu Ser Gln Ser Pro Met Leu Leu Glu		
1745	1750	1755
Leu Met Thr Glu Val Leu Cys Arg Glu Gln His Val Met Glu Glu		1760
1765	1770	1775
Leu Phe Gln Ser Ser Phe Arg Arg Ile Ala Arg Arg Gly Ser Cys Val		
1780	1785	1790
Thr Gln Val Gly Leu Leu Glu Ser Val Tyr Glu Met Phe Arg Lys Asp		
1795	1800	1805
Asp Pro Arg Leu Ser Phe Thr Arg Gln Ser Phe Val Asp Arg Ser Leu		
1810	1815	1820
Leu Thr Leu Leu Trp His Cys Ser Leu Asp Ala Leu Arg Glu Phe Phe		
1825	1830	1835
Ser Thr Ile Val Val Asp Ala Ile Asp Val Leu Lys Ser Arg Phe Thr		1840
1845	1850	1855
Lys Leu Asn Glu Ser Thr Phe Asp Thr Gln Ile Thr Lys Lys Met Gly		
1860	1865	1870
Tyr Tyr Lys Ile Leu Asp Val Met Tyr Ser Arg Leu Pro Lys Asp Asp		
1875	1880	1885
Val His Ala Lys Glu Ser Lys Ile Asn Gln Val Phe His Gly Ser Cys		
1890	1895	1900
Ile Thr Glu Gly Asn Glu Leu Thr Lys Thr Leu Ile Lys Leu Cys Tyr		
1905	1910	1915
Asp Ala Phe Thr Glu Asn Met Ala Gly Glu Asn Gln Leu Leu Glu Arg		
1925	1930	1935
Arg Arg Leu Tyr His Cys Ala Ala Tyr Asn Cys Ala Ile Ser Val Ile		
1940	1945	1950
Cys Cys Val Phe Asn Glu Leu Lys Phe Tyr Gln Gly Phe Leu Phe Ser		
1955	1960	1965
Glu Lys Pro Glu Lys Asn Leu Leu Ile Phe Glu Asn Leu Ile Asp Leu		
1970	1975	1980
Lys Arg Arg Tyr Asn Phe Pro Val Glu Val Glu Val Pro Met Glu Arg		
1985	1990	1995
Lys Lys Lys Tyr Ile Glu Ile Arg Lys Glu Ala Arg Glu Ala Ala Asn		
2005	2010	2015
Gly Asp Ser Asp Gly Pro Ser Tyr Met Ser Ser Leu Ser Tyr Leu Ala		
2020	2025	2030
Asp Ser Thr Leu Ser Glu Glu Met Ser Gln Phe Asp Phe Ser Thr Gly		
2035	2040	2045
Val Gln Ser Tyr Ser Tyr Ser Ser Gln Asp Pro Arg Pro Ala Thr Gly		

2050	2055	2060
Arg Phe Arg Arg Arg	Glu Gln Arg Asp Pro	Thr Val His Asp Asp Val
2065	2070	2075
Leu Glu Leu Glu Met	Asp Glu Leu Asn Arg	His Glu Cys Met Ala Pro
2085	2090	2095
Leu Thr Ala Leu Val	Lys His Met His Arg	Ser Leu Gly Pro Pro Gln
2100	2105	2110
Gly Glu Glu Asp Ser	Val Pro Arg Asp Leu	Pro Ser Trp Met Lys Phe
2115	2120	2125
Leu His Gly Lys Leu	Gly Asn Pro Ile Val	Pro Leu Asn Ile Arg Leu
2130	2135	2140
Phe Leu Ala Lys Leu	Val Ile Asn Thr Glu	Glu Val Phe Arg Pro Tyr
2145	2150	2155
Ala Lys His Trp Leu	Ser Pro Leu Leu Gln	Leu Ala Ala Ser Glu Asn
2165	2170	2175
Asn Gly Gly Glu Gly	Ile His Tyr Met Val	Val Glu Ile Val Ala Thr
2180	2185	2190
Ile Leu Ser Trp Thr	Gly Leu Ala Thr Pro	Thr Gly Val Pro Lys Asp
2195	2200	2205
Glu Val Leu Ala Asn	Arg Leu Leu Asn Phe	Leu Met Lys His Val Phe
2210	2215	2220
His Pro Lys Arg Ala	Val Phe Arg His Asn	Leu Glu Ile Ile Lys Thr
2225	2230	2235
Leu Val Glu Cys Trp	Lys Asp Cys Leu Ser	Ile Pro Tyr Arg Leu Ile
2245	2250	2255
Phe Glu Lys Phe Ser	Gly Lys Asp Pro Asn	Ser Lys Asp Asn Ser Val
2260	2265	2270
Gly Ile Gln Leu Leu	Gly Ile Val Met Ala	Asn Asp Leu Pro Pro Tyr
2275	2280	2285
Asp Pro Gln Cys Gly	Ile Gln Ser Ser Glu	Tyr Phe Gln Ala Leu Val
2290	2295	2300
Asn Asn Met Ser Phe	Val Arg Tyr Lys Glu	Val Tyr Ala Ala Ala Ala
2305	2310	2315
Glu Val Leu Gly Leu	Ile Leu Arg Tyr Val	Met Glu Arg Lys Asn Ile
2325	2330	2335
Leu Glu Glu Ser Leu	Cys Glu Leu Val Ala	Lys Gln Leu Lys Gln His
2340	2345	2350
Gln Asn Thr Met Glu	Asp Lys Phe Ile Val	Cys Leu Asn Lys Val Thr
2355	2360	2365
Lys Ser Phe Pro Pro	Leu Ala Asp Arg Phe	Met Asn Ala Val Phe Phe
2370	2375	2380
Leu Leu Pro Lys Phe	His Gly Val Leu Lys	Thr Leu Cys Leu Glu Val
2385	2390	2395
Val Leu Cys Arg Val	Glu Gly Met Thr Glu	Leu Tyr Phe Gln Leu Lys
2405	2410	2415
Ser Lys Asp Phe Val	Gln Val Met Arg His	Arg Asp Glu Arg Gln Lys
2420	2425	2430
Val Cys Leu Asp Ile	Ile Tyr Lys Met Met	Pro Lys Leu Lys Pro Val
2435	2440	2445
Glu Leu Arg Glu Leu	Leu Asn Pro Val Val	Glu Phe Val Ser His Pro
2450	2455	2460
Ser Thr Thr Cys Arg	Glu Gln Met Tyr Asn	Ile Leu Met Trp Ile His
2465	2470	2475
Asp Asn Tyr Arg Asp	Pro Glu Ser Glu Thr	Asp Asn Asp Ser Gln Glu
2485	2490	2495
Ile Phe Lys Leu Ala	Lys Asp Val Leu Ile	Gln Gly Leu Ile Asp Glu
2500	2505	2510
Asn Pro Gly Leu Gln	Leu Ile Ile Arg Asn	Phe Trp Ser His Glu Thr
2515	2520	2525
Arg Leu Pro Ser Asn	Thr Leu Asp Arg Leu	Leu Ala Leu Asn Ser Leu
2530	2535	2540
Tyr Ser Pro Lys Ile	Glu Val His Phe Leu	Ser Leu Ala Thr Asn Phe

2545	2550	2555	2560
Leu Leu Glu Met Thr Ser Met Ser Pro Asp Tyr Pro Asn Pro Met Phe			
	2565	2570	2575
Glu His Pro Leu Ser Glu Cys Glu Phe Gln Glu Tyr Thr Ile Asp Ser			
	2580	2585	2590
Asp Trp Arg Phe Arg Ser Thr Val Leu Thr Pro Met Phe Val Glu Thr			
	2595	2600	2605
Gln Ala Ser Gln Gly Thr Leu Gln Thr Arg Thr Gln Glu Gly Ser Leu			
	2610	2615	2620
Ser Ala Arg Trp Pro Val Ala Gly Gln Ile Arg Ala Thr Gln Gln Gln			
	2625	2630	2635
His Asp Phe Thr Leu Thr Gln Thr Ala Asp Gly Arg Ser Ser Phe Asp			
	2645	2650	2655
Trp Leu Thr Gly Ser Ser Thr Asp Pro Leu Val Asp His Thr Ser Pro			
	2660	2665	2670
Ser Ser Asp Ser Leu Leu Phe Ala His Lys Arg Ser Glu Arg Leu Gln			
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Arg Ala Pro Leu Lys Ser Val Gly Pro Asp Phe Gly Lys Lys Arg Leu			
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Gly Leu Pro Gly Asp Glu Val Asp Asn Lys Val Lys Gly Ala Ala Gly			
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Arg Thr Asp Leu Leu Arg Leu Arg Arg Arg Phe Met Arg Asp Gln Glu			
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Lys Leu Ser Leu Met Tyr Ala Arg Lys Gly Val Ala Glu Gln Lys Arg			
	2740	2745	2750
Glu Lys Glu Ile Lys Ser Glu Leu Lys Met Lys Gln Asp Ala Gln Val			
	2755	2760	2765
Val Leu Tyr Arg Ser Tyr Arg His Gly Asp Leu Pro Asp Ile Gln Ile			
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Lys His Ser Ser Leu Ile Thr Pro Leu Gln Ala Val Ala Gln Arg Asp			
	2785	2790	2795
Pro Ile Ile Ala Lys Gln Leu Phe Ser Ser Leu Phe Ser Gly Ile Leu			
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Lys Glu Met Asp Lys Phe Lys Thr Leu Ser Glu Lys Asn Asn Ile Thr			
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Gln Lys Leu Leu Gln Asp Phe Asn Arg Phe Leu Asn Thr Thr Phe Ser			
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Phe Phe Pro Pro Phe Val Ser Cys Ile Gln Asp Ile Ser Cys Gln His			
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Ala Ala Leu Leu Ser Leu Asp Pro Ala Ala Val Ser Ala Gly Cys Leu			
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Ala Ser Leu Gln Gln Pro Val Gly Ile Arg Leu Leu Glu Glu Ala Leu			
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Leu Arg Leu Leu Pro Ala Glu Leu Pro Ala Lys Arg Val Arg Gly Lys			
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Ala Arg Leu Pro Pro Asp Val Leu Arg Trp Val Glu Leu Ala Lys Leu			
	2915	2920	2925
Tyr Arg Ser Ile Gly Glu Tyr Asp Val Leu Arg Gly Ile Phe Thr Ser			
	2930	2935	2940
Glu Ile Gly Thr Lys Gln Ile Thr Gln Ser Ala Leu Leu Ala Glu Ala			
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Arg Ser Asp Tyr Ser Glu Ala Ala Lys Gln Tyr Asp Glu Ala Leu Asn			
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Lys Gln Asp Trp Val Asp Gly Glu Pro Thr Glu Ala Glu Lys Asp Phe			
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Trp Glu Leu Ala Ser Leu Asp Cys Tyr Asn His Leu Ala Glu Trp Lys			
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Ser Leu Glu Tyr Cys Ser Thr Ala Ser Ile Asp Ser Glu Asn Pro Pro			
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Asp Leu Asn Lys Ile Trp Ser Glu Pro Phe Tyr Gln Glu Thr Tyr Leu			
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Pro Tyr Met Ile Arg Ser Lys Leu Lys Leu Leu Leu Gln Gly Glu Ala			

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Gln	Lys	Ala	Ile	Leu	Glu	Leu	His	Tyr	Ser	Gln	Glu	Leu	Ser	Leu					
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Gly	Ile	Gln	Ser	Phe	Met	Gln	Asn	Tyr	Ser	Ser	Ile	Asp	Val	Leu	Leu				
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Asp	Ala	Lys	Met	Asp	Pro	Met	Asn	Ile	Trp	Asp	Asp	Ile	Ile	Thr	Asn				
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Arg	Cys	Phe	Phe	Leu	Ser	Lys	Ile	Glu	Glu	Lys	Leu	Thr	Pro	Leu	Pro				
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Cys	Lys	Phe	Ser	Met	Lys	Met	Lys	Met	Ile	Asp	Ser	Ala	Arg	Lys	Gln				
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Ser	Tyr	Leu	Xaa	Lys	Asn	Ile	Leu	Ala	Phe	Arg	Asp	Gln	Asn	Ile	Leu				
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Thr	Asp	Asn	Tyr	Pro	Gln	Ala	Ile	Val	Tyr	Pro	Phe	Ile	Ile	Ser	Ser				
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Glu	Ser	Tyr	Ser	Phe	Lys	Asp	Thr	Ser	Thr	Gly	His	Lys	Asn	Lys	Glu				

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Lys	Leu	Leu	Arg	Met	Lys	Leu	Ser	Asp	Phe	Asn	Asp	Ile	Thr	Asn	Met					
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Val	His	Ala	Leu	Arg	Ala	Phe	Arg	Ser	Asp	Pro	Gly	Leu	Leu	Thr	Asn					
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Val	Ala	Glu	Lys	Asn	Trp	Tyr	Pro	Arg	Gln	Lys	Ile	Cys	Tyr	Ala	Lys					
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Arg	Lys	Leu	Ala	Gly	Ala	Asn	Pro	Ala	Val	Ile	Thr	Cys	Asp	Glu	Leu					
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Leu	Leu	Gly	His	Glu	Lys	Ala	Pro	Ala	Phe	Arg	Asp	Tyr	Val	Ala	Val					

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Ala Arg Gly Ser Lys Asp His Asn Ile Arg Ala Gln Glu Pro Glu Ser		
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Gly Leu Ser Glu Glu Thr Gln Val Lys Cys Ile Met Asp Gln Ala Thr		
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Asp Pro Asn Ile Leu Gly Arg Thr Trp Glu Gly Trp Glu Pro Trp Met		
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Pro	His	Trp	Tyr	His	Phe	Ser	Cys	Phe	Trp	Lys	Val	Gly	His	Ser	Ile
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Arg	His	Pro	Asp	Val	Glu	Val	Asp	Gly	Phe	Ser	Glu	Leu	Arg	Trp	Asp
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Asp	Gln	Gln	Lys	Val	Lys	Lys	Thr	Ala	Glu	Ala	Gly	Gly	Val	Thr	Gly
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Ser	Ala	Ser	Gln	Leu	Lys	Gly	Phe	Ser	Leu	Leu	Ala	Thr	Glu	Asp	Lys
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Glu	Ala	Leu	Lys	Lys	Gln	Leu	Pro	Gly	Val	Lys	Ser	Glu	Gly	Lys	Arg
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Gln	Asn	Asp	Leu	Ile	Trp	Asn	Ile	Lys	Asp	Glu	Leu	Lys	Lys	Val	Cys
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Ser	Thr	Asn	Asp	Leu	Lys	Glu	Leu	Leu	Ile	Phe	Asn	Lys	Gln	Gln	Val
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Pro	Ser	Gly	Glu	Ser	Ala	Ile	Leu	Asp	Arg	Val	Ala	Asp	Gly	Met	Val
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Lys	Ser	Asp	Ala	Tyr	Tyr	Cys	Thr	Gly	Asp	Val	Thr	Ala	Trp	Thr	Lys
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Cys	Met	Val	Lys	Thr	Gln	Thr	Pro	Asn	Arg	Lys	Glu	Trp	Val	Thr	Pro
				325					330					335	
Lys	Glu	Phe	Arg	Glu	Ile	Ser	Tyr	Leu	Lys	Lys	Leu	Lys	Val	Lys	Lys
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Gln	Asp	Arg	Ile	Phe	Pro	Pro	Glu	Thr	Ser	Ala	Ser	Val	Ala	Ala	Thr
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Pro	Pro	Pro	Ser	Thr	Ala	Ser	Ala	Pro	Ala	Ala	Val	Asn	Ser	Ser	Ala
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Ser	Ala	Asp	Lys	Pro	Leu	Ser	Asn	Met	Lys	Ile	Leu	Thr	Leu	Gly	Lys
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Gly	Lys	Leu	Thr	Gly	Thr	Ala	Asn	Lys	Ala	Ser	Leu	Cys	Ile	Ser	Thr
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Lys	Lys	Glu	Val	Glu	Lys	Met	Asn	Lys	Lys	Met	Glu	Glu	Val	Lys	Glu
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Ala	Asn	Ile	Arg	Val	Val	Ser	Glu	Asp	Phe	Leu	Gln	Asp	Val	Ser	Ala
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Ser	Thr	Lys	Ser	Leu	Gln	Glu	Leu	Phe	Leu	Ala	His	Ile	Leu	Ser	Pro
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Trp	Gly	Ala	Glu	Val	Lys	Ala	Glu	Pro	Val	Glu	Val	Val	Ala	Pro	Arg
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Gly	Lys	Ser	Gly	Ala	Ala	Leu	Ser	Lys	Lys	Ser	Lys	Gly	Gln	Val	Lys
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Gly	Gly	Ala	Ala	Val	Asp	Pro	Asp	Ser	Gly	Leu	Glu	His	Ser	Ala	His
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Val	Leu	Glu	Lys	Gly	Gly	Lys	Val	Phe	Ser	Ala	Thr	Leu	Gly	Leu	Val
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Asp	Ile	Val	Lys	Gly	Thr	Asn	Ser	Tyr	Tyr	Lys	Leu	Gln	Leu	Leu	Glu
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Ser	Gln	Gly	Ser	Ser	Asp	Ser	Gln	Ile	Leu	Asp	Leu	Ser	Asn	Arg	Phe
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Ser	Ser	Lys	Asp	Pro	Ile	Asp	Val	Asn	Tyr	Glu	Lys	Leu	Lys	Thr	Asp
785					790					795					800
Ile	Lys	Val	Val	Asp	Arg	Asp	Ser	Glu	Glu	Ala	Glu	Ile	Ile	Arg	Lys
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Tyr	Val	Lys	Asn	Thr	His	Ala	Thr	Thr	His	Asn	Ala	Tyr	Asp	Leu	Glu
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Val	Ile	Asp	Ile	Phe	Lys	Ile	Glu	Arg	Glu	Gly	Glu	Cys	Gln	Arg	Tyr
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Lys	Pro	Phe	Lys	Gln	Leu	His	Asn	Arg	Arg	Leu	Leu	Trp	His	Gly	Ser
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Arg	Thr	Thr	Asn	Phe	Ala	Gly	Ile	Leu	Ser	Gln	Gly	Leu	Arg	Ile	Ala
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 Phe Ala Asp Met Val Ser Lys Ser Ala Asn Tyr Cys His Thr Ser Gln
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 Gly Asp Pro Ile Gly Leu Ile Leu Leu Gly Glu Val Ala Leu Gly Asn
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 Met Tyr Glu Leu Lys His Ala Ser His Ile Ser Lys Leu Pro Lys Gly
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